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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------------|------------------|
| 10/809,863 | 03/26/2004 | Nobuyuki Aihara | 500.38034CC2 | 7591 |
| 20457 | 7590 | 04/25/2005 | | |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873 | | | EXAMINER LAXTON, GARY L | |
| | | | ART UNIT 2838 | PAPER NUMBER |

DATE MAILED: 04/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/809,863 | AIHARA ET AL. | |
| | Examiner | Art Unit | |
| | Gary L. Laxton | 2838 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/26/04</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 1 and 2 are objected to because of the following informalities:

Claim 1 line 5 recites "a DC/DC converter whose an input terminal" [sic]. Claim 2 inherits the same from claim 1.

Claim 1 line 13, the examiner objects to the word "usually" since it is not a positive limitation and does not indicate the meets and bounds of the scope of limitation.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al (US 5,978,236) in view of Levrant et al (US 5,982,645) or Brand et al (US 5,901,057).

Faberman et al disclose a power supply (figure 1); an AC/DC converter (D1A) which converts AC power (E1A) and converts it DC voltage (E2A) and outputs the DC power to an output terminal thereof; a DC/DC converter (T1A and D2A) connected to the output terminal of the AC/DC converter; the DC/DC converter converting a DC voltage inputted thereto into a voltage value to be applied to and used at a load; a DC converter (33) with a first terminal connected to the output terminal of the AC/DC converter and the input terminal of the DC/DC converter; and DC power storage means (31) which is connected to a second terminal of the DC converter (EA4) and which supplies the DC/DC converter (T1A and D2A) with a DC power through the DC converter (33); wherein, the load is supplied with the DC power from the AC/DC converter (D1A) through the DC/DC converter (T1A and D2A), and the DC power storage means (31) connected to the second terminal of the DC converter (33) is supplied with the DC power to be charged from the AC/DC converter (D1A) through the output terminal (E2A) of the AC/DC converter (D1A), the first terminal of the DC converter (33) and the DC converter (33); and wherein, when the input AC power is not applied to the AC/DC converter (D1A), the load is supplied with the DC power from the DC power storage means (31) through the second terminal, the DC converter (33), the first terminal and the DC/DC converter (T1A and D2A) in that order.

However, Faberman et al does not disclose power factor correcting.

Levrant et al, col. 3 lines 30-35 teach the AC/DC converter has unity power factor and /or Brand et al teach the power supply employs power factor correction (Abstract).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ power factor correction techniques in order to maximize circuit efficiency, as is well known in the art and desired, that power factor correction provides.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faberman et al (US 5,978,236) and Levrant et al (US 5,982,645) or Brand et al (US 5,901,057) in view of Hanington (US 5,754,414).

Faberman et al (US 5,978,236) and Levrant et al or Brand et al disclose the claimed subject matter in regards to claim 1 except for the DC converter having two converters and a high voltage transformer as claimed in claim 2.

DC converters having a first converter connected to an AC side of a high voltage transformer and a second converter connected to the other AC side of the transformer are most well known to any person of ordinary skill in the art. Hanington is one of many examples of a DC converter having an input capable of being connected to a battery (Vs), a first converter (18) connected to an AC side of a high voltage transformer (12), and a second converter (32, 34) connected to the other side of the transformer (30) to efficiently convert the battery power (Vs) into a high output voltage (Vo) which is then used to power electronic devices.

Therefore, it would have been obvious to one having ordinary skill in the art to modify Faberman and Levrant et al or Brand et al to include a DC converter that included a first converter having an AC terminal (transformer input/output), and a DC terminal (Vo) which

would be the first terminal connected to the input terminal of the DC/DC converter (T1A and D2A); a transformer (12) having a high-voltage side winding (30) connected to the AC terminal of the first converter, and a low-voltage side winding, and a second converter (18) having an AC terminal connected to the low-voltage side winding, and a DC terminal which is the second terminal connected to the DC power storage means (Vs) in order to power a load with a low voltage battery and to efficiently convert the battery power into a high output voltage which then can be used to power the load.

Conclusion


6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,288,918 Tarodo et al disclose an AC/DC converter with a bidirectional storage means charged and discharged with a DC converter; US 6795322 Aihara et al disclose a power supply with an uninterruptible function.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (571) 272-2079. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 4/18/05
Gary L. Laxton
Primary Examiner
Art Unit 2838